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# **Synthesis of Education Programs, Scholarship, Loan, and Internship Opportunities Available To Assist In Increasing the Number of Minorities Working In Fisheries And Marine Sciences**



NOAA Technical Memorandum NOS NCCOS 53



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# Synthesis of Education Programs, Scholarship, Loan, and Internship Opportunities Available To Assist In Increasing The number of Minorities Working In Fisheries And Marine Sciences

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## Introduction

The National Oceanic and Atmospheric Administration (NOAA) has a long history of fostering minority development in the sciences and increasing minority participation in marine, environmental and atmospheric sciences. Cullenberg and Garza (2006).

*Increasing the number of Alaska Natives and Rural Alaskans working in fisheries and marine sciences: Review and recommendations*). Alaska Sea Grant Marine Advisory Program, University of Alaska Fairbanks [<http://seagrant.uaf.edu/map>], evaluating the need to increase the participation of Alaska Natives and Rural Alaskans in the marine and fisheries sciences, identified seven impediments to this effort, most of which apply to minorities in general: (1) little or no exposure to these fields while in middle school and high school; (2) limited or lack of strong science and math classes at the high school level; (3) lack of a dedicated marine science pathway to college; (4) lack of retention programs for minorities at the college level; (5) poor linkages between education, funding, internships and employers; (6) different cultural learning styles by Alaska Native students; (7) relevance of current teaching materials to Native and rural Alaska students.

According to Hard (1995; see reference in first section of this report), the traditional approach to educating the fisheries scientist typically immerses the student in issue techniques specific to fisheries, often at the expense of a solid foundation in the basic sciences, particularly biology, chemistry and mathematics. He feels that specialization is no substitute for a broad foundation in basic science and mathematics, a factor Cullenberg and Garza (2006) report is generally lacking. A report entitled Fisheries Science: Educational and Career Outlook (October 14, 2004. See [EnviroEducation.com](http://EnviroEducation.com) in the first section of this report) indicates that students in fisheries science programs should expect to study courses focused on biology and ecology, including both freshwater and marine systems, and indicates further that courses in statistics and biometrics are important.

There is, however, a need to begin the process in the early educational years and build upon this throughout high school and college. Guidance counselors and teachers need to be able to direct students who are potentially interested in the marine sciences to appropriate reports and web-based sources of information. Cuker (2005/2006. *Programmatic Approaches to building diversity in ocean sciences*. Marine Technology Society Journal 39:8-14 - see discussion in next section of this report) indicates that too many minority students lack the K-12 preparation required to be successful as an undergraduate science major. Cullenberg and Garza (2006) found this to be the case in Alaska and recommended that stakeholders, academic institutions, and employers need to support K-12 programs and opportunities which encourage students to consider the marine and fisheries sciences.

The information in the following report was gathered from web-based searches, email communication with colleagues, and phone conversations. This material was gathered to assist guidance counselors, teachers, and minority students potentially interested in marine science or science education of the available opportunities for education and training, and provide information on scholarships and internships. Although we



emphasize information pertinent to minority students, much of the material is relevant to any student seeking information on educational opportunities. In most instances, a website is provided so that the interested student, teacher or guidance counselor can obtain further details on the program, scholarship, loan opportunity or internship.

This report is divided into six sections, the first of which provides information on documents that emphasize the need for education/training of minorities in the sciences including marine science. Also provided is material students can use to find out about careers in the sciences, some universities that offer marine science education, and curricula that should be considered. The second section deals with existing programs designed to train pre-college students and prepare them either for further education or potential employment in the sciences. The next four sections deal with existing programs in the marine sciences for college-level students, scholarships and scholarship programs, examples of loan programs, and internships and internship programs.

**Reports which emphasize the need for improving the science education base of minorities. This section also includes some material that can be used by students interested in learning more about science careers.**

- Fisheries and Aquaculture Management of Fisheries and Oceans Canada has a website that describes the Aboriginal Fisheries Strategy and the Aboriginal Aquatic Resources and Oceans Management Program (AAROM). It provides a program overview and describes the desire to develop Aboriginal Fishery Officers and Aboriginal capacity in aquatic resource management, commercial fishing and aquaculture ([www.dfo-mpo.gc.ca/communic/fish\\_man/](http://www.dfo-mpo.gc.ca/communic/fish_man/)).
- The Fisheries Center at the University of British Columbia Research Reports Volume 10, Number 8 (2002) provides a substantive discourse on the need for "Education for Aboriginal Fisheries Science and Ecosystem Management." This document also presents information on effective recruitment strategies, funding of needed programs and social support for Aboriginals leaving communities for training and education in fisheries. The full citation is: Haggan, N., C. Brignall, B. Peacock, and R. Daniel (eds.). 2002. *Education for Aboriginal Fisheries Science and Ecosystem Management*. Fisheries Centre, University of British Columbia. Volume 10. ISSN 1198-6727. This 49 page report discusses Traditional and Modern Ecosystem Science; findings of the workshop from which this report is based (including issues and constraints, building capacity, effective recruitment strategies, and funding support); ladderling; a survey of post secondary programs (fisheries certificate, diploma, degree, and post-degrees); experience of First Nations with fisheries studies and education; existing programs; and employment opportunities.
- Bringham, Sulkin, Strom and Muller-Parker. 2003. *Increasing Diversity in Marine Sciences Through the Minorities in Marine Science Undergraduate Program*. Journal of Geoscience Education 51(5):474-480.
- The AAAS Minority Scientists Network (MiSciNet) ([http://sciencecareers.sciencemag.org/career\\_development/miscinet](http://sciencecareers.sciencemag.org/career_development/miscinet)). MiSciNet is a collaborative effort involving Science magazine's Next Wave Web Site and the

- AAAS Directorate for Education and Human Resources. MiSciNet is a weekly online journal that addresses issues targeted toward underrepresented populations. Its initiatives include outreach activities and a presence at national scientific meetings. The site includes a meeting database page. Access to the site requires a Next Wave subscription or AAAS membership.
- Building Engineering and Science Talent (BEST) (<http://www.bestworkforce.org/>). A public/private partnership to increase participation of underrepresented minorities in science. A report is available at the website.
  - Cuker, B.E. 2005/2006. *Programmatic Approaches to Building Diversity in the Ocean Sciences*. Marine Technology Society Journal 39 (4):8-11. This report provides a discourse on needs in building diversity in marine or ocean sciences, and Cuker states that “Too many of these students [minority students] also lack the kindergarten through grade 12 (K-12) preparation needed to be successful as an undergraduate science major.” Cuker describes a number of existing programs in his text and also provides information on a number of practices that have proven successful in building these programs: (1) recruiting for participants, (2) building a sense of community ownership, (3) structuring for diversity, (4) cultivating the individual, and (5) organizing for sustainability. Each have examples to help develop the practice. In addition, Cuker provides several references including: (a) Cuker 2001a. *Steps to increasing minority participation in the aquatic sciences*. Catching up with shifting demographics. Bulletin of the American Society of Limnology and Oceanography 10(2):17-21. (b).Cuker 2001b. *Designing diversity into the COSEE Program: Inclusion of traditionally underrepresented groups in the ocean sciences*. The Journal of Marine Education 18(4):26-29.
  - Baker, B. March 2000. *Recruiting Minorities to the Biological Sciences*. *Bioscience*. 50(3): 191-195.
  - Careers in Oceanography, Marine Science & Marine Biology provides a listing of guides to careers, schools, curricula, summer courses and internships in marine biology, careers in ichthyology. Go to the website in the title and also to <http://scilib.ucsd.edu>.
  - Hard, J. J. 1995. *Science, education, and the fisheries scientist*. Fisheries 20:10-16.
  - [EnviroEducation.com](http://EnviroEducation.com) October 14, 2004. Provides a report entitled Fisheries Science: Educational and Career Outlook which provides a brief discussion on what is fisheries science, what are the educational requirements, and what are some of the careers and salary outlooks for this educational background..
  - [www.mbnms-simon.org](http://www.mbnms-simon.org) provides a listing of Fisheries Education Links. This is a Monterey Bay National Marine Sanctuary website which has links to many marine-related activities and is not just linked to information on Monterey Bay. This website also provides a list of fishery education links
  - <http://wdcrobcolp01.ed.gov> (also see the Science-Oceanography website). This website provides a listing of various resources and websites such as [Fisheries and Aquatic Resources](#) and [the National Marine Sanctuaries](#)

(<http://sanctuaries.noaa.gov/education/>), which can be useful sources to stimulate student's interest.

**Existing Programs and Opportunities At The Pre-College Level That Students, Guidance Counselors and Teachers Can Research as Potential Resources and for Information on Training.**

- The Hutton Junior Fisheries Biology Program (<http://www.fisheriesconservation.org/Hutton.shtml>) is a summer mentoring program for high school students sponsored by AAAS to stimulate interest in careers in fisheries science and management among groups underrepresented in the fisheries professions. Students selected will be matched with a professional mentor for a summer-long, hands on experience in a marine or freshwater setting and will be provided with a \$3,000 scholarship. A number of descriptions of this program may be found by searching under "Hutton Junior Fishery Biology Program" on the web.
- Camp Sea Lab (\$750) uses marine science to develop leadership, citizenship and life skills for ages 14-18 ([www.campsealab.org](http://www.campsealab.org))
- Research Science Institute provides 70 high school students with 6 weeks of science, math and engineering academics. (<http://www.cee.org/rsi>). The only cost of this program is for transportation to and from MIT where the program is run.
- Young Scholar Program at UC Davis is a residential research program designed to expose 40 high achieving high school sophomores and juniors to research in biological, agricultural, and environmental sciences ([ucdavisYoungScholarsProgram](http://ucdavisYoungScholarsProgram); <http://ysp.ucdavis.edu>).
- Science Buddies is a non-profit organization empowering students to help themselves and each other develop an interest and love of science and an understanding of the scientific methods with the aid of mentors and advisors (<http://sciencebuddies.org/>).
- Fisheries Learning on the Web (<http://www.projectflow.us/>) is a comprehensive curriculum about the Great Lakes ecosystem geared toward educators
- Sciences & Tribes Educational Partnership (STEP) is an association between Northwest tribes and the University of Washington to prepare Native American students for academic and professional success in the natural resource sciences. This program combines K-12 and teacher training focused on tribal resource issues, school-based academic programs, and intensive summer research. The description of this program provided is fairly thorough laying out information for weekly programs. See Northwest Science and Technology Magazine, Autumn Issue 2001, pp 47-48. Also see [www.wsg.washington.edu/publications/seastar/archive/storyarchives/spawning.html](http://www.wsg.washington.edu/publications/seastar/archive/storyarchives/spawning.html) and [www.wsg.washington.edu/research/coastaldev/education.html](http://www.wsg.washington.edu/research/coastaldev/education.html).
- Ku'ula Curricula (<http://edithkanakaolefoundation.org/projects/kuula.htm>; go to link to Kuula K-12 Curricula). This program is a part of the Kanaka'ole Foundation and has programs for Kindergarten through Grade 6 for science fair and resource guide; Grade 7-8 for coastal monitoring and science fair; and Grade

10-12 designed to teach traditional conservation of marine resources and provide basic knowledge of scientific measurement and research along coastlines. This program is based at Hilo, Hawaii. Details for each program area are provided on the website.

- The Carrier Sekani Tribal Council Fisheries (<http://cstc.bc.ca/>) is a program in British Columbia designed to supply fisheries trainees to assist in the management of various aspects of fisheries. The Council is working to substantially increase their participation in the sustainability of fishery stocks, and thus re-establish their role in fish conservation and management. The Council is involved in the training of Aboriginal Fisheries Officers and in fisheries technical training. This is available for a wide range of ages. Additional information can be found by searching links found under CSTC Fisheries.
- The American Institute of Biological Sciences ([www.aibs.org/careers/](http://www.aibs.org/careers/)) has a document available that could prove useful to pre-college students as well as undergraduates: *Careers in the Biological Sciences*. It provides information on studies that should be taken in high school and college to ensure a strong background, as well as questions to ask relative to college. This site also provides websites on general career development, internship listings, and research experiences for undergraduates.
- EnvironMentors Project (<http://www.environmentors.org>) is an environment-based mentoring program with the goal to prepare urban high school students for college degree programs and careers in environmental fields. The program helps to interest and prepare students for environmental college degree programs through immersion in rigorous college preparation courses; faculty presentations, symposia, and campus tours and placement in fellowships and internships with federal agency, non-profit, and corporate environmental employers. Also see the Diversity Outreach Directory provided at [http://www.aibs.org/diversity/diversity\\_outreach\\_directory.html](http://www.aibs.org/diversity/diversity_outreach_directory.html).
- MANRRS-Minorities in Agriculture, Natural Resources and Related Sciences (<http://www.manrrs.org/>). This is a national society that provides a network to support professional development of minorities in agriculture, natural resources, and related sciences with a membership that includes high school, undergraduate, and graduate students as well as professional members.
- Youth and Education News, found in <http://www.nativevillage.org/> provides information pertinent to early youth outreach, science projects, scholarships and grant programs.
- Native American Fish and Wildlife Society (<http://www.nafws.org/>) is a national tribal organization developing a national communications network for the exchange of information and management techniques related to self-determined tribal fish and wildlife management. This society sponsors a Native American Environmental Awareness Summer Youth Practicum to promote natural resources management careers for Native American Youth. Each year high school students are enrolled in a summer course at Mt. Evans Outdoor Education Lab in Evergreen, Colorado.
- Southeast Alaska Science and Math Camp, Sheldon Jackson College (<http://www.sheldonjackson.edu/>) provides an opportunity to earn math and

science credits while taking coursework in integrated studies, marine biology and fisheries, math applied to the sciences, terrestrial and aquatic ecology, physical geography of Alaska, and geographic information systems.

- Alaska Native Science and Engineering Program (ANSEP) Pre-College Program (<http://ansep.uaa.alaska.edu>) targets high school juniors and encourages coursework in chemistry, physics, and trigonometry. The program currently is developing a summer bridge program that may include a math classroom component followed by a field component focusing on fisheries and/or wildlife.
- Rural Alaska Honors Institute (RAHI) ([www.uaf.edu/rahi/](http://www.uaf.edu/rahi/)) is a bridging program that assists students in Rural Alaska in making the academic and social transition between high school and college.
- Rural Alaska Preparatory Program (RAPP) at Sheldon Jackson College ([www.sheldonjackson.edu](http://www.sheldonjackson.edu)) is a camp for those who want to do well on the high school qualifying exam.

### **Existing Programs Directed at Science and, in Some Instances, Fisheries Education and Training, That Appear Directed at Post-High School Individuals.**

*Few programs exist specific to fisheries per se, but industrious students can work to ensure that their program will assist in their own fisheries education. The programs listed or discussed below also contain information on internships and/or scholarships that may not be covered later.*

- Northwest Indian College National Indian Center for Marine Environmental Research and Education, NICMERE (when using a search engine see entries under NICMERE). This program is designed to provide education and research opportunities for Tribal College and University Students in marine sciences including fisheries science. A goal is to increase the number of Native Americans competing in professional and research programs through education which encourages internships and mentoring opportunities. NICMERE is charged with providing native scientists who are fully qualified from a Native perspective and build jobs that will enhance their communities using their natural resources. Research fellowships and internships are available. The NOAA National Marine Fisheries Service and the Northwest Indian College have a Memorandum of Understanding pertaining to the establishment of The National Indian Center and Marine Environmental Research and Education Center. According to NMFS Seattle, available funds for this Center have been limited. .
- National Cooperative Fisheries Scholarship Program at the University of Arkansas at Pine Bluff (UAPB) ([www.uaex.edu/aqui/undergrad/scholarships/](http://www.uaex.edu/aqui/undergrad/scholarships/)) is housed in the Department of Aquaculture and Fisheries at UAPB and offers two competitive 4-year scholarships to high school seniors. The program is cooperative with the US Geological Survey. The website provides information on applying for the scholarships as well as descriptions of the program, including research, and the undergraduate curriculum. Also see search engine entries under National Cooperative Fisheries.



- Minorities in Marine Science Undergraduate Program (MIMSUP) described in (<http://www.ac.wvu.edu/~mimsup>) and Bringham, Sulkin, Strom and Muller-Parker.2003. *Increasing Diversity in Marine Sciences Through the Minorities in Marine Science Undergraduate Program*. 2003. Journal of Geoscience Education 51(5):474-480, is a program at Western Washington University's Shannon Point Marine Center (<http://www.ac.wvu.edu/~sPMC/index.html>) which seeks to increase the representation of minority individuals in marine sciences including fisheries sciences. This is a program that has been in existence for over 15 years includes two 10-week quarters of intensive marine science study for 8 students who are recruited annually from across the nation. The NSF funding covers tuition and fees for two quarters, housing costs, travel to the Shannon Point Marine Center and the outreach work-study programs. As with the previous two programs, there definitely are elements of this program that could be incorporated into a program for Alaska Natives.
- Malaspina University-College Fisheries and Aquaculture Extension Program (<http://www.mala.ca/nrep/index.asp>) has an educational training program that includes fisheries and development of professional/technical fisheries workers. The coordinator of the program has a great deal of experience delivering community-based, applied training to remote communities throughout Canada. The website provides a curriculum for At Sea Fisheries Observer Training, Biological Sampling Procedures, Electrofishing, Fish Habitat Restoration, Fisheries Field Technician Certificate Program, etc.
- The Office of Indian Education ([www.indianeducation.org](http://www.indianeducation.org)) has a website that describes their Professional Development program, which is a competitive grants program for institutions of higher education, including Indian institutions, Indian tribes or organizations in consortium with an institution of higher education.
- The University of Hawaii at Hilo and Manoa's School of Ocean and Earth Sciences and Technology ([www.kohalacenter.org/hisp/marine\\_sci.shtml](http://www.kohalacenter.org/hisp/marine_sci.shtml)) has a program of study, presumably with scholarships, on marine sciences and probably fisheries, although fisheries science, *per se*, was not among the programs mentioned.
- National Coalition of Underrepresented Racial and Ethnic Groups in Engineering and Science (nCourages) (<http://www.ncourages.org/>). This is a coalition of 11 science and engineering societies working together to increase racial and ethnic diversity in these fields
- The University of Idaho has established the Native American Recruitment Program which is designed to target, recruit and retain Native American students at the University of Idaho (a PDF description of the program and other associated programs at the University can be found by entering Native American Recruitment Program American Indian Studies Program in a search engine; also see <http://www.students.uidaho.edu/default.aspx>.) The American Indian Studies Program, American Indian Education in Science Program and a number of other programs at the University are described. Also described are several pre-college programs: Upward Bound, Northwest Nations Educational Opportunity Center, Northwest Nations Upward Bound, Upward Bound Math Science, Educational Talent Search, and HOIST—Helping Orient Indian Students and Teachers Into

- Math and Science. Email addresses are provided for information contacts for these programs. (This is an example of a program available at a university/college directed at recruitment and retention of Native Americans. Similar examples can be found at many universities.)
- The University of Washington has a brief report available on the web in PDF format entitled “Innovations in Recruitment and Retention in Science, Math and Engineering”. Funds for the program will also be used to support the program manager of the STEP program (Sciences and Tribes Educational Partnership) based at the College of Ocean and Fisheries Sciences. The purpose of this program is to establish a pipeline to provide Native American students the capability of sustaining environment-based post -secondary studies. This program includes internships and working with students and researchers in Fisheries and the Program on the Environment.
  - Native Americans in Marine Science (<http://spacegrant.oregonstate.edu/programs/education/namss>; the reader can also use a search engine for information under Native Americans in Marine Science). The National Science Foundation funds this research participation program for American Indians and Alaska Native undergraduates at Oregon State University who are interested in exploring science as a career. The purpose of the program is to increase the number of Native Americans and Alaska Natives in scientific professions by giving students direct scientific research experience. Students selected for the program are paid hourly wages for part-time work as research assistants with faculty scientific research projects. The program is administered by Dr. Judith Vergun ([vergunj@ats.orst.edu](mailto:vergunj@ats.orst.edu)).
  - The American Indian Science and Engineering Society (AISES) ([www.aises.com](http://www.aises.com)) offers pre-college academic programs, teacher training, a K-12 education newsletter, an environmental camp, and weekly meetings during the academic year for college students

### **Scholarships and Scholarship Programs Potentially Available.**

*This listing also includes some internship information. There are a great deal available but few, if any, are directed specifically at fisheries sciences or marine science. However, the ones noted below appear to be where an applicant can torque the studies to meet his/her needs, which could be fisheries. Rather than go into detail, readers are directed to individual websites or scholarship names that can be researched further by interested students or guidance counselors.*

- See American Indian Science and Engineering Society Scholarships (<http://www.aises.org/highered/scholarships/>) for descriptions:
  - Henry Rodrigues Reclamation Scholarship and Internship (\$5,000 annually). Bachelor’s degree seeker in engineering or science relating to water resources.

- A. T. Anderson Memorial Scholarship (\$1,000 annually). Major must be within several scientific disciplines including science or natural resources. Must be considered American Indian or Alaskan Native
- EPA Tribal Lands Environmental Science Scholarship (\$4,000 annually). Must be a full time junior or senior or full time graduate student and be studying environmental studies, science or engineering fields.
- See College Scholarships for Native American Students, Page 1, Page 2, Page 3 (<http://www.abetterchance.org/ReferralOrgs&Resources/>):
  - ACS/Bayer Scholars Program—for full-time college students at accredited colleges or universities in chemistry or the sciences
  - Alaska Native Brotherhood Association
  - American Indian Heritage Foundation/Miss Indian USA. 2-year for up to \$15,000/yr
  - American Indian Heritage Foundation/Outstanding Indian. Average \$1000
  - American Indian Heritage Foundation/Scholarships. \$1,000 annually
  - American Indian Science and Engineering Society (AISES)—see previously
  - AT&T Labs Undergraduate Research Program. Must be a woman or member of a minority group underrepresented in the sciences and must be at least a college junior.
  - Atlantic Salmon Federation—Oriented toward the Atlantic Salmon fishery
  - Della M. Bailey Indian Scholarship Trust
  - Battelle—Internships for minorities in science and engineering
  - Coca-Cola Scholarships provide 54 \$20,000 scholarships and 100 four-year \$4,000 scholarships
  - Cooperative Education Agreement scholarships for women and minority candidates in fish and wildlife biology. \$11,000 annually plus tuition
  - Council of Energy Resource Tribes (CERT)—for American Indian or Canadian Indian CERTs Tribes Program graduates and CERT summer interns
  - Intel Science Talent Search—award is from \$5,000 to \$100,000. 40 presented annually and it requires a scientific research project presentation.
  - International Order of the King's Daughters and Sons. For Native American undergraduates who are beginning or continuing in a technical, vocational or college program
  - Charles A. Lindbergh Fund, Inc. \$10,580 grant to students in technology and environment.
  - Lucent Technologies Foundation Cooperative Research Fellowship Program for Minorities. \$17,000 plus tuition, fees, books, and travel expenses and includes sciences and related fields as majors
  - Private Colleges and Universities Scholarships
  - Al Qoyawayma Award to undergraduate American Indian students studying science, engineering and arts. \$2,000 annually

- The Jackie Robinson Foundation provides a scholarship for up to \$6,000
  - Take Me Away to College Calgon Bath and Body Scholarship Contest
  - US Department of Interior Bureau of Indian Affairs annual awards
- See American Institute of Biological Sciences Diversity Outreach Directory (<http://www.aibs.org/diversity/>; also search the web under this item title):
  - Association for Women in Science (<http://www.awis.org/>)
  - Building Engineering and Science Talent (BEST) (<http://www.bestworkforce.org/>)
  - Ecological Society of America's Strategies for Ecology Education, Development and Sustainability (SEEDS) ([www.esa.org/seeds/](http://www.esa.org/seeds/))
  - MESA USA- Mathematics, Engineering, Science, Achievement (<http://mesa.ucop.edu/about/mesausa.html>)
  - National Council for Science and Environment (NCSE) (<http://www.ncseonline.org>) - working with EnvironMentors to help minority high school students connect with college and university environmental programs
  - The Quality Education for Minorities (QEM) Network Mathematics, Science and Engineering Program ([qemnetwork.qem.org](http://qemnetwork.qem.org))
- Dolores E. Fisher Award is a \$1000 award for a young woman 16-30 (<http://www.melfisher.org/deoaward>).
- Annie's Environmental Studies Scholarship of \$1000 for tuition, books and other educational experiences (<http://annies.com/programs>).
- American Indian Endowed Scholarship. Does not stipulate field of study. ([www.hecb.wa.gov/paying/waaidprgm/aies.asp](http://www.hecb.wa.gov/paying/waaidprgm/aies.asp))
- In conjunction with the American Indian Learning Resource Center the Native American Fish and Wildlife Society-Great Lakes Region provides a website that describes several scholarship sources which are designed to assist Native American students in pursuing a course of study leading toward an undergraduate or graduate degree in natural resources, fisheries, wildlife management, resource recreation, etc. Using a search engine search under American Indian Learning Resource Center and/or Native American Fish and Wildlife Society-Great Lakes Region. Also go to <http://www.d.umn.edu/ailrc/scholarship.html>.
- Level Playing Field Institute (<http://www.lpfi.org>). This is a tabulation of selected funding sources to increase women and people of color in science, math and engineering. Many of the scholarships listed or discussed previously are also listed herein.
- The Phoenix (AZ) Campus Community has put together a listing of Native American Scholarships: ([www.phx.devry.edu/financial\\_info](http://www.phx.devry.edu/financial_info); go to Native American Scholarships link) none of which are specific to fisheries but are important for students interested in science and technology. Details on these scholarships and scholarship programs can be obtained from the website specific to the scholarship program. For example:

- A. T. Anderson Memorial Scholarship Program from the American Indian Science and Engineering Society
  - American Indian Development Foundation Scholarships from the American Indian Science and Engineering Society
  - CERT Scholarships associated with the same organization as above
  - Hobart S. Hill, Jr. Leadership Award associated with the same organization
  - Robert Brocksbank Scholarships associated with the same organization
  - Schuyler Meyer Jr. Scholarship associated with the same organization
  - American Indian Services
  - Association of American Indian Affairs ([www.indian-affairs.org](http://www.indian-affairs.org))
  - Bureau of Indian Affairs Higher Education Program
  - Indian Education-Colleges and Universities, Office of Indian Education Programs
  - Indian Fellowship Program - Office of Indian Education
  - Native American Education Grants
  - Research Assistantships for Minority High School Students
  - Research Experiences for Undergraduates
  - Gates Millennium Scholarships in Mathematics, Science, Engineering, Education or Library Science for Entering First-Year College Students
  - Scholarships for Students Enrolled in Tribal Colleges. Using a search engine, search under this title and see in particular [www.collegefund.org/scholarships](http://www.collegefund.org/scholarships).
  - The Bristol Bay Economic Development Council (AK) describes the Harvey Samuelsen Scholarship Trust for post-secondary students of Bristol Bay CDQ villages (AK).
- Ernest F. Hollings Undergraduate Scholarship with up to \$29,000 available per student for studies and internships in the area of ocean and atmospheric sciences and education ([www.orau.gov/noaa/HollingsScholarship](http://www.orau.gov/noaa/HollingsScholarship)). Designed to increase undergraduate training in ocean and atmospheric science, research, technology and education.
  - Morris K. Udall Undergraduate Scholarships of up to \$5,000 to sophomore and junior level college students who have demonstrated commitment to careers related to tribal public policy or health care, and are Native American or Alaska Native and also are studying science or resource management. ([www.udall.gov/scholarship](http://www.udall.gov/scholarship)).
  - American Indian College Fund Tribal College Scholarship Program ([www.collegefund.org/scholarships/](http://www.collegefund.org/scholarships/)).
  - Friends of American Indians in Education (PO Box 45554, Seattle, WA 98145) have a brochure that describes The American Indian Endowed Scholarship Program which appears to be specific to Washington State. A listing of students who have been awarded the scholarship since 1993
  - The National Indian Education Association has a website ([www.niea.org/media/scholarships.php](http://www.niea.org/media/scholarships.php)) that lists scholarship sources and



- websites such as the American Indian College fund, American Indian Education Foundation ([www.aiefprograms.org](http://www.aiefprograms.org)), American Indian Services (<http://www.americanindianservices.org>), Morris K. Udall Foundation (see website listed above).
- The Marine Technology Society (MTS) lists available student scholarships, available funds and general requirements ([www.mtsociety.org/education/student\\_education.cfm](http://www.mtsociety.org/education/student_education.cfm); also search under the Marine Technology Society website for scholarship information). These are not specific to minority students. The scholarships are primarily to expand the opportunities for marine technology and marine engineers. For example
    - Charles H. Bussmann Undergraduate Scholarship of \$2500 for MTS student members; undergraduates enrolled full time in a marine related field
    - The MTS Student Scholarship of \$2000 for MTS student members and non-MTS students who are undergraduates or graduates enrolled full time in a marine related field or high school students who have been accepted into a full time undergraduate program.
  - Aboriginal, First Nations, Native Awards, Bursaries and Scholarships (<http://web.uvic.ca/ablo/>). This website lists a number of awards available, one of which is the Fisheries Scholarship, BC Aboriginal Fisheries Commission valued at \$500 and \$1,000. Student must be enrolled in a full-time post secondary program relevant to fisheries management.
  - AMMSA, Aboriginal Scholarship/Bursary Guide (<http://www.ammsa.com/>). This is information on available scholarships by province and school.
  - University of Guelph, College of Biological Science (<http://www.uoguelph.co/cbs>) provides a listing of wide-ranging scholarships for undergraduates in the College of Biological Sciences.
  - Aboriginal Fisheries Student Scholarship, supported by Fisheries and Oceans Canada. Information can be found at several websites ([www.fisheries.ubc.ca](http://www.fisheries.ubc.ca); [www.longhouse.ubc.ca](http://www.longhouse.ubc.ca); [www.bcafc.org](http://www.bcafc.org)). These are designed to support Aboriginal Masters or PhD students doing research on aquatic ecosystems and fisheries. \$75,000 annually.
  - CASTS ([www.casts.ca/scholarships.htm](http://www.casts.ca/scholarships.htm)) scholarships are awarded to post-secondary graduate and undergraduate students for leadership and academic achievement and support Canadian Aboriginal peoples. This website provides listings of scholarships. This is a program worth looking into as a potential template for similar programs in Alaska.
  - The Yukon Department of Renewable Resources has developed a website to help Aboriginals support environmental projects ([www.taiga.net/nce/fundingsources.html](http://www.taiga.net/nce/fundingsources.html)) that does list one fisheries-related scholarship sponsored by the Yukon Fish and Wildlife Management Board which is designed for a project to restore, protect and enhance fish, wildlife, and/or their habitats.

- The Canadian Aboriginal Mapping Network ([www.nativemaps.org/links](http://www.nativemaps.org/links)) provides a listing of organizations or groups that may have funding sources for Aboriginal peoples of Canada.

**Examples of Loan Programs and Loan Program websites as well as some other financial aid sources that may be available are listed below.**

- <https://www.nextstudent.com>
- [www.alaskaadvantage.ak.us/](http://www.alaskaadvantage.ak.us/) provides information on loans including the A. W. “Winn” Brindle Memorial Education Loan for full time study in fisheries-related programs. (see pages 234 and 308 in particular).
- The Alaska State Student Aid Program information is available at [www.state.ak.us/acpe](http://www.state.ak.us/acpe) and provides information on Alaska Supplemental Education Loans which provide a maximum of \$8,500 annually, and the Alaska Family Educational Loan which also provides up to \$8,500 annually
- Applications for Financial Aid (FAFSA) assistance from the Federal government can be found at <http://studentaid.ed.gov> as well as from <http://www.ed.gov/finaid.html>
- College Aid Sources for Higher Education can be found at [CASHE.com](http://CASHE.com). This site provides a number of links to scholarship and financial aide information.
- Educaid ([www.educaid.com](http://www.educaid.com)), a division of The Money Store, is one of the top 10 educational lenders in the U.S.
- Information on grants for students can be found at [www.usagovernmentgrants.org/Government\\_Grants.html](http://www.usagovernmentgrants.org/Government_Grants.html) and [www.grantshost.com](http://www.grantshost.com)
- The Higher Education Division of the Bureau of Indian Affairs, US Department of Interior, provides loans of \$200-\$7,000 annually to students ([http://www.oiep.bia.edu/faqs\\_grantinfo.html](http://www.oiep.bia.edu/faqs_grantinfo.html))
- [http://www.kheaa.com/fed\\_ffelp.html](http://www.kheaa.com/fed_ffelp.html)) provides information on the Federal Family Educational Program

### **Internship Programs and Opportunities.**

*By-and-large the student receiving the internship would be conducting work or study at locations outside their place of residence or primary education. The reader can use a search engine and look under Marine Science Internships for more than presented below.*

- ENTRY POINT! (see <http://ehrweb.aaas.org/entrypoint/>; also see <http://www.entrypoint.com>) ENTRY POINT is a program of the AAAS offering internship opportunities for students with disabilities in science, engineering, math, computer science, and some fields of business
- How to Get an Internship with the US Fish and Wildlife Service. See <http://www.eco.org/fwsinternships> and <http://www.eco.org/internships> which provides information on more than the USFWS. Backgrounds in demand include

- aquatics, biology, ecology, and natural resources. Pay is \$4,800/12 weeks plus potentially free housing or a \$1,000 housing allowance.
- Native Americans in Marine and Space Sciences—discussed previously under NAMSS at Oregon State University. (Search web under Native Americans in Marine and Space Sciences).
  - Details of the NOAA Educational Partnership Program and the Environmental Entrepreneurship Program may be found at <http://epp.noaa.gov>
  - Environment Canada's Science Horizons Youth Internship Program ([www.ec.gc.ca/sci\\_hor/](http://www.ec.gc.ca/sci_hor/)) has provided practical work experience in environmental projects in such areas as climate and ecosystem research, wildlife research and management, ecological monitoring and assessment. The youth involved must be younger than 30 and eligible to work in Canada. The program matches youth with mentors or coaches who are experienced scientists or program managers in the private or public sector.
  - The Smithsonian Institution has an office of Fellowships or Internships and has a website (<http://www.si.edu/ofg/internopp>) which describes opportunities generally available throughout their network. Among the internships described are:
    - Minority Internships to increase participation of minority students in Smithsonian scholarly programs.
    - Native American Internships to pursue projects related to Native American topics
  - Rochester Institute of Technology has a website that lists Co-op/Internship Opportunities for Minority and underrepresented students and one that lists Co-op/Internship Opportunities in Ecology, Animal and Plant Biology, and Marine Biology ([www.rit.edu](http://www.rit.edu)), which are 10 and 13 pages long, respectively. The opportunities listed are throughout the US. Few are specific to fisheries sciences, but the marine science training would be invaluable to students intending to major in fisheries science.
  - The Native American Fish and Wildlife Society (NAFWS) has a website ([www.nafws.org](http://www.nafws.org)) that is 30 pages in length and lists both fellowships/internships and scholarships, most with websites and often mailing addresses.
  - Environment Canada's Science Horizons Youth Internship Program ([http://www.ec.gc.ca/sci\\_hor/](http://www.ec.gc.ca/sci_hor/)). Over the past 9 years this program has assisted close to 1000 students obtain practical work experience in environmental projects in areas such as climate and ecosystem research, wildlife research and management, ecological monitoring and assessment and development of scientific tools such as standards and guidelines of environmental quality.
    - ~100 youth placements/year for 6-12 months
    - approximately \$12,000 per placement available for projects
    - matches youth with mentors
  - A listing of Internship opportunities can be found at [http://marine.rutgers.edu/ed/intern\\_opps.html](http://marine.rutgers.edu/ed/intern_opps.html). This includes listings throughout

the US and some opportunities internationally. This is a 15 page document which provides a wide range of examples of types of marine science-related internships available.

- The Society for Advancement of Chicanos and Native Americans in Science (SACNAS) provides listings of internships, undergrad research experiences, and summer programs (see [www.sacnas.org](http://www.sacnas.org)).
- The Environmental Careers Organization (ECO) (<http://www.eco.org/>) places 750 students and graduates in paid internships across the country.
- The Quality Education for Minorities (QEM) Network Mathematics, Science and Engineering Program (<http://qemnetwork.qem.org/>) is dedicated to improving the education of minority children, youth, and adults, and assists NSF, NASA, and NIH with its minority programs and in preparing grants to provide internships for minority students.
- SEEDS (Strategies for Ecology Education, Development, and Sustainability) (<http://www.esa.org/seeds/>) provides a listing of internships available for undergraduates, provides some details, and a weblink for each.
- JustGarciaHill ([www.justgarciahill.org/jghdocs/](http://www.justgarciahill.org/jghdocs/)) is an organization committed to increasing the number of minorities entering science careers. There are listings of internships provided.
- <http://www.internshipprograms.com> provides an internship search engine that should prove invaluable.
- Examples of Sea Grant Internships may be found at <http://www.nosb.org/site/internships>

NOAA has a goal to increase the number of minority students who are trained in sciences directly related to NOAA's mission. The listing of reports, pre-college and college level programs, scholarship, loan, and internship opportunities we have provided is not exhaustive, but is designed to provide students, mentors and guidance counselors guideposts to assist in obtaining materials pertinent to training and education in the sciences, with emphasis on the marine science.

This information is current as of Spring, 2007.

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